

Vernal Coal Field

Location

The Vernal field is located on the northeast margin of the Uinta Basin in Uintah County, Utah.

Stratigraphy

A brief summary of the coal deposits of the field was completed by Gale (1910) and Lupton (1912). Kinney (1955) studied the stratigraphy and mapped the geology of part of the field and worked on the Frontier Formation coals. A regional stratigraphic study was completed by Molenaar and Wilson (1990). The most comprehensive report on the coal geology is by Doelling and Graham (1972). Thicknesses of units are from Kinney (1955).

**Table.** Stratigraphy—Vernal coal field.

| Stratigraphic units |        | Depositional environment              | Thickness (ft) |
|---------------------|--------|---------------------------------------|----------------|
| Mesaverde Formation |        | nearshore marine; coastal plain; coal | 1,100          |
| Mancos Group        |        |                                       |                |
| upper shale member  | marine |                                       | 4,900          |
| Frontier Formation  |        | nearshore marine; coastal plain; coal | 140-270        |
| Mowry Shale         | marine |                                       | 30-120         |

Coal Deposits

Coal beds in this field contain numerous partings and dip steeply. The coal beds are generally thin, although Frontier coals are as thick as 8.1 ft and Mesaverde Formation coals can be as thick as 7.0 ft (Doelling and Graham 1972).

Coal Quality

Both the Frontier and Mesaverde coals have an apparent rank of high-volatile C bituminous. Averages for ash, sulfur, and heat contents are given in the table below (Doelling and Smith, 1982).

**Table.** Coal in Mesaverde Formation.

[Values reported on an as-received basis]

| Ash content<br>(percent) | Sulfur content<br>(percent) | Heating value<br>(Btu/lb) |
|--------------------------|-----------------------------|---------------------------|
| 17.5                     | 0.8                         | 8,750                     |

**Table.** Coal in Frontier Formation.

[Values reported on an as-received basis]

| Ash content<br>(percent) | Sulfur content<br>(percent) | Heating value<br>(Btu/lb) |
|--------------------------|-----------------------------|---------------------------|
| 12.5                     | 1.6                         | 11,510                    |

### *Resources*

Inferred resources with as much as 3,000 ft of overburden equal about 164 million short tons in the Frontier and about 13 million short tons in the Mesaverde (Doelling and Graham, 1972, p. 26–27).

### *Production History*

About 52 mines or prospects were opened in the area between the 1870's and 1955, producing a total of about 250,000 short tons of coal (Kinney, 1955; Doelling and Graham, 1972; Doelling and Smith, 1982).

### *References*

- Doelling, H.H., and Graham, R.L., 1972, Vernal coal field, *in* Doelling, H.H., and Graham, R.L., eds., Eastern and Northern Utah Coal Fields: Utah Geological and Mineralogical Survey Monograph Series No. 2, p. 1–95.
- Doelling, H.H., and Smith, M.R., 1982, Overview of Utah coal fields, 1982, *in* Gurgel, K.D., ed., Proceedings Fifth Symposium on the Geology of Rocky Mountain Coal 1982: Utah Geological and Mineral Survey Bulletin 118, p. 1–26.
- Gale, H.S., 1910, Coal fields of northwestern Colorado and northeastern Utah: U.S. Geological Survey Bulletin 415, 265 p.
- Kinney, D.M., 1955, Geology of the Uinta River–Brush Creek area, Duchesne and Uintah Counties, Utah: U.S. Geological Survey Bulletin 1007, 185 p.
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- Molenaar, C.M., and Wilson, B.W., 1990, The Frontier Formation and associated rocks of northeastern Utah and northwestern Colorado: U.S. Geological Survey Bulletin 1787, 21 p.